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A YEAR'S WORK IN ABDOMINAL SURGERY
AT THE KENSINGTON HOSPITAL
FOR WOMEN.

BY

DR. CHARLES P. NOBLE.



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A YEAR'S WORK IN ABDOMINAL SURGERY
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DR. CHARLES P. NOBLE.

In presenting this outline report of my last year's work in Abdominal Surgery at the Kensington Hospital for Women, I shall pay special attention to certain general principles and a few technical details, and I shall avoid a mere enumeration of the cases. In this way I hope to have some doubtful points made plain in the discussion, and at the same time to present something which may prove of interest to the Society.

During the fiscal year, October 13, 1890, to October 12, 1891, fifty-two (52) abdominal sections have been done for the following morbid conditions:

Fibroid Tumors	3
Salpingitis.—Chronic Salpingitis and ovaritis (with adhesions in 8 cases)	12
Pyosalpinx—single	2
double	1
Hæmatosalpinx	1
Hydrosalpinx (double).	2—18

Ovarian Tumors—Single, 6	
Double, 2	
Treble, 1	9
Tubercular Peritonitis	2
Broad Ligament Cyst with Chronic Salpingitis	1
Rudimentary Appendages	3
Hypertrophic Cirrhosis of Ovaries.	2
Pelvic Abscess	1—18

MIXED CASES.

Ovarian Tumors, complicated by—	
Salpingitis	3
Pyosalpinx	2
Hæmatosalpinx	2
Malignant Disease of Pelvis	1—8
Cancer of Colon	1
Tubal Pregnancy	2
Ventral Hernia	1
Pelvic Cellulitis	1—5
Total	52

Operations:

Both Uterine appendages completely removed

One appendage completely removed.

On one right ovariectomy for cyst, left ovariectomy had been done two years previously by Dr. Kelly.

Hysterectomy for œdematous myoma

Simple Sections:

Exploratory—Myoma	1
Pelvic Cellulitis	1
Pelvic Abscess	1
Cancer of Colon	1
Fluid—Tubercular Peritonitis	2
Hernia	1—7

Uterine Appendages Incompletely Removed—

Piece of Ovary left	2
One Ovary left	1— 3

—
52

Forty-eight cases or 92 per cent. were drained.

There were four deaths.

The first death was in a case of suppurating intra-ligamentous ovarian cyst. The operation was done four weeks after delivery. It was a very difficult and tedious operation, and the patient died in less than twenty-four hours in hyperpyrexia. The temperature went up rapidly and reached 107° twenty-two hours after the operation. I may say that the patient was thoroughly irrigated and drained, but she died undoubtedly septic.

The second death occurred in a case of triple ovarian cyst. On the right side was a large ovarian cyst containing twenty-two quarts, and on the left side two cysts connected with the ovary—something that I had never seen before. She also had a myoma as large as my head. The case is detailed in the paper. She died five hours after operation.

The next death was in a carcinomatous ovarian cyst. It was the case to which I have referred in this society, as one in which there



was terrific hæmorrhage. The cyst was ruptured before the cancer was detected. When the tumor was lifted out, the whole broad ligament was torn off and the blood poured out in a stream from the incision. It was one of the cases in which I ligated both ends of the broad ligament with great satisfaction. She died of peritonitis on about the sixth day.

The next death was a case of hæmatosalpinx on one side and hydrosalpinx on the other. There was slight hæmorrhage after the operation, but apparently not enough to necessitate reopening. She died septic. I believe it would have been better practice to have reopened the abdomen when the septic symptoms appeared, and to have irrigated and drained.

The technique employed is that which I detailed in a recent paper, read before the Philadelphia County Medical Society. In brief, asepsis is considered the *summum bonum* to be obtained without injuring the patient with chemical solutions. Steam is used as a sterilizer so far as practicable, prolonged scrubbing of the hands with soap, water and nail-brush, and then the use of saturated permanganate of potash solution,

and saturated oxalic acid solution, followed by peroxide of hydrogen solution and corrosive sublimate solution. Gauze, sponges and ligatures are sterilized by means of chemical solutions, which solutions are washed out in plain boiled water before these materials are used in operations. Sponges are used but once, and then destroyed. Ligatures and sutures (silk) are boiled before each operation. The patient's abdomen is thoroughly scrubbed with soap and water, and alcohol, and washed with sublimate solution before she leaves her room, and after she is on the table it is again washed with soap and water, the abdominal and pubic hair is shaved and the abdomen is douched with sublimate solution. As competent bacteriologists have showed the difficulty, if not the impossibility, of disinfecting the patient's and the surgeon's skin, it is felt that every care must be taken to approach *asepsis* as nearly as possible. After operation is once begun, only plain boiled water is used, unless it be to disinfect some limited area, as a pedicle stump.

The operations herewith reported have been done for disease only, and all the uterine appendages removed were the seat of demonstrable lesions. Operation was refused no

patient having grave diseases, except those with Bright's disease; and the appendages were removed for minor disease of the ovaries in no case except after the failure of less radical treatment. But while I still adhere to this position, a growing experience influences me to doubt the wisdom of maintaining it too strictly. When women are far advanced towards death from neglected pelvic disease, there comes a time when surgery offers them little, if any, hope, except the hope of a speedy release from suffering. Under these circumstances the surgeon's duty is a painful and perplexing one. He should lay the truth before the patient and her friends, the almost certainty of early death without operation, the scarcely less than certainty of death with operation, and should promise only to faithfully apply his art. The patient and friends must decide for or against operation under these circumstances. When a woman has an ovarian tumor or other pelvic disease which will destroy her life, and yet—she being in good general condition—it can be removed with a minimum chance of death, it is the surgeon's duty not only to put the truth before her, but also to urge operation. But it seems to me that this is neither incumbent nor ad-

visible when operation offers so little, as it does when the same patients are at death's door. Again, my experience inclines me to doubt the wisdom of too great delay in operating upon cases of defective ovarian and tubal development among the poor. Among the well-to-do, travel, horseback and other outdoor exercise and general roborant medication, if advised early—preferably before the age of twenty—may bring about development of these organs. Marriage under proper circumstances may be curative. But when a poor, ill-nourished, hardworking girl, past twenty-five, presents herself with a history of late puberty, irregular, painful menstruation, with various menstrual neuroses, sufficient to make her an invalid, the prospect of a cure by medical means is about zero. If palliative treatment does not give encouraging results promptly, the appendages should be removed before the menstrual neuroses render her a complete, incurable wreck.

Of the three cases of operation for rudimentary appendages done this year, one is too recent for mention. The first was done eleven and the second seven months ago.

CASE I.—Mill operative, aged 23, has been

under medical treatment more or less regularly for seven years, for violent dysmenorrhœa, which so exhausts her that she is in torture or is miserable two weeks out of four. Menstruation appeared when she was between 16 and 17, and for two years came every two weeks. It was never regular. As palliatives she has had medication, hysterorrhaphy (for retroflexion) and dilatation of cervix, none of which were of special avail. Operation November 23, 1890. Uterus, tubes and broad ligaments, small; ovaries, cystic and cirrhotic, slightly enlarged. She has been absolutely cured, and is now in training as a nurse.

CASE II.—Clerk, aged 35, menstruant at 14 years, three months, then skipped for a year; she has had painful menstruation for nineteen (19) years; severe pain one week before and during the flow. She has been growing steadily worse, and suffers now three weeks out of four; has been under constant medical care for seven and a half years. Aside from medication, general and local, she has had electricity by one of its strongest advocates, the rest-cure for thirteen weeks under a neurologist, dilatation of the cervix and removal of a post-cervical fibroid—all

this failed to relieve her. The appendages were removed March 23, 1891. The uterus, tubes, ovaries and broad ligaments were ill-developed. October 29 she reports herself as getting fat and strong, and free from all her former suffering, except occasional headache.

Two cases deserve a report as showing markedly the bad results of delay and neglect in the treatment of pelvic disease.

Mrs. J., aged 54, ix-para, consulted me June 27, 1891. She was brought from Western New York. The conditions were as follows: The abdomen was enormously distended, with three areas of resistance and dulness. The right leg was œdematous. Orthopnœa was marked. The pulse varied from 110 to 120. There were complete anorexia, and obstinate vomiting, which had persisted for weeks. The bowels and kidneys were inactive. The patient was evidently approaching death by reason of starvation and suffering. She had suffered from menorrhagia between the ages of 48-51, and from menorrhagia and metrorrhagia from 51 to 54. During this time she was treated for change of life, then for a uterine polyp, and, finally, for the dropsy. At this time she consulted

Dr. P. G. Clark, of Unadilla, N. Y., who sent her to me. The prognosis given was early death without operation; probable death, even on the table, with operation. The patient was brave, and said if I thought she had a single chance she would take it. Operation disclosed a ruptured colloid cyst of the right ovary, with twenty three quarts of contents; also a myoma six inches in diameter, and two ovarian tumors with distinct pedicles growing from the left ovary. The ovarian tumors were removed. Death followed in five hours from exhaustion; or, rather, I believe, from cerebral anæmia, caused by the filling up of the portal vessels, when the immense pressure to which they had been subjected was removed.

The abdomen had been steadily enlarging for a year. A double ovariectomy, or a hysterectomy, for the soft myoma, done a year ago, would almost surely have saved her. She died a victim of superstition concerning hæmorrhages at the menopause, and of indifference or ignorance on the part of her attendant concerning a growing tumor within the abdomen.

The second case is of even greater interest, as belonging to a class concerning the treatment of which gynæcologists are not agreed.

Mrs. W., aged 42, ii-para, was seen first in October, 1890, at which time she had been confined to bed for eighteen months. The history is as follows: She was always well until the birth of her last child, sixteen years ago. At that time she had pelvic inflammation. Her health steadily deteriorated, and after a year she became a chronic invalid. For ten years she was treated for womb disease, ulceration of the cervix and nervous prostration, at the end of which time she was compelled to give up her business. For three years and a half the history was about the same, when menorrhagia became marked and electricity was used. Becoming worse, she went to bed and remained there a year and a half when I saw her. She complained of almost constant bleeding from the womb, marked pelvic pain, general debility and feeble digestion. I have never seen a more complete nervous wreck. On examination, the uterus was found enlarged and the appendages tender and somewhat adherent. The question was what was best to do for one so reduced in strength. I determined to curette to control hæmorrhage, and, later, when she had recuperated, to remove the appendages. Operation November 5, 1890.

The uterus was dilated slightly, it being very hard and unyielding. On introducing the curette I found that it passed up toward the umbilicus, showing that the uterus had been fractured by the dilator—the only accident of the kind in my hands. With a double indication for section now present, I proceeded at once to stitch up the rent in the uterus and to remove the appendages. The ovaries were both cystic, and ovaries and tubes were imbedded in old adhesions—chronic ovaritis and salpingitis with adhesions. The patient did well, and is slowly regaining her health. She now superintends her household duties and looks forward to years of health and usefulness. Her improvement is progressive and in every way satisfactory. This case, added to others not dissimilar, has caused me to give up my doubts concerning the propriety of removing such diseased appendages. What folly to preserve such organs at the sacrifice of the possession of health! Mrs. W. has had ten physicians for periods varying from six months to two years, and seven others for a shorter time. So-called conservatism cost her fifteen years of suffering in the prime of life, has permanently sapped her vigor, has cost her several thousand dol-

lars, worse than wasted, to secure useless treatment, has broken up her business and reduced her from a position of independence to one of poverty.

These cases are but types, illustrating the folly and hazard of delay ; and the results obtained are in marked contrast to the beneficent results of early operation both for pelvic tumors and for pelvic inflammatory conditions.

When the uterine appendages are removed it is always desirable that the removal shall be complete. But when the broad ligament is shrunk by disease, or is short and inelastic from lack of proper development, not infrequently, when the ligature is applied in the usual way, in order to leave a sufficient bottom to provide against slipping of the ligature, it is necessary to leave a portion of the ovary in the pedicle. In some cases this will defeat the object of the operation (when done for fibroid of the uterus, or deficient ovarian development) and is always unfortunate. In such cases I have employed the linked suture, with three or even four interlocking links, placed well down in the broad ligament. In this way the ovary may be excised completely.

The question of irrigation has given much cause for anxious thought. It seems to me that it is only a happy guess when we decide aright that the peritonæum is thoroughly irrigated, and the danger of septic peritonitis averted. For the lack of something more satisfactory, irrigation is used in all cases in which there has been a discharge of septic material into the pelvis. If the amount of septic material has been great, and there is reason to believe that it has spread through the bowels, the abdominal as well as the pelvic cavity should be irrigated. I believe that certain dangers attend irrigation. It certainly tends to spread septic material from the pelvis into the abdomen. This is best avoided by turning the patient on the side, and securing a steady out-flow of the water. Again, it is very sloppy, it prolongs operation and often increases shock. To avoid this, where it is necessary to irrigate the entire abdomen, and especially the small bowels, it is often well to enlarge the incision, let the bowels escape, and pour water directly upon them. In this way the cleansing can be done more quickly, and the additional room afforded greatly facilitates subsequent drying of the peritonæum by sponging. When the

bowels have been covered with septic fluid, unless this is done, it must always be a matter of doubt as to whether they have been effectually cleaned.

The question of the septic or non-septic character of fluid in the abdomen is a most important one. On clinical grounds, I am inclined to believe that very much pus found in the pelvis is non-septic, and that this explains the apparent remarkable efficacy of simple irrigation. This opinion is supported by the fact that the "dry treatment" of these cases is by no means unsuccessful, and that microscopists fail to find bacteria in many specimens of pus.

In one instance, the abdomen was reopened on the fourth day for péritonitis. Symptoms of peritonitis appeared within twenty-four hours after the operation and became progressive. On the third day there was a chill and rise of temperature above 103° F., with corresponding tympany, pain and quick pulse. Until after the chill, the skin had been hot and dry. It then became clammy and leaky. The abdomen was then reopened, adhesions between the coils of intestines and the left pedicle broken up, thorough irrigation employed and a glass drainage tube again intro-

duced. The operation had been done for chronic salpingitis and ovaritis with adhesions in a syphilitic woman. She had had the disease over two years, and had been steadily taking mercury and iodide of potassium. At the operation a gumma was found under the left tube, and several were found in the omentum. The irrigation did not seem markedly to influence the course of the peritonitis. The woman was very sick for some weeks, but eventually recovered, and is now rapidly gaining strength. The peritonitis was evidently of the adhesive type, though doubtless septic in origin. I was led to reopen the belly by the occurrence of the chill and the subsequent leaky, clammy skin, indicating the absorption of septic material. This had been my guide in the past in reopening the abdomen; but in a number of cases in which the skin has remained hot and dry the patients have recovered without operation. When the skin has been cold and leaky and the temperature rising, death has followed when the abdomen was not reopened. In one other such case recovery followed reopening the abdomen, irrigating and draining.

DISCUSSION.

DR. B. F. BAER :

I wish to express the pleasure I had in listening to this interesting paper, and there are several points that I would like to discuss. The statement of Dr. Noble, that he drained in ninety-two per cent. of the series of cases just reported, is rather startling to me, for I am sure it was unnecessary and therefore harmful. It was a great and unnecessary annoyance to himself, even if no harm were done to the patients. I feel certain, however, that it did harm the patients. If in no other way, it did so because it was necessary in consequence to compel them to maintain the dorsal position. The greatest discomfort and suffering after laparotomy comes from the necessity, where drainage is used, to keep the patient upon the back. When the drainage tube is not employed, this is not necessary, and the patient is therefore far more comfortable. If the patient desires, and there is no contraindication, she should be turned on her side within twenty-four hours after the operation—sometimes as early as twelve hours.

I believe that in one of the cases of sepsis mentioned the drainage tube was the cause.

I believe that this is a cause of sepsis in many cases. I am also certain that it is the cause of fistula in some cases. I know that it was in two of my own. In one I reopened on the fourth day on account of fæcal fistula. Failing to find the opening in the bowel after patient search, I closed the abdomen without drainage, except from the fæcal fistula, and the patient made a good recovery, proving that drainage of the peritoneal cavity in the first place was not necessary.

During the year covered by this report, I have had many cases as bad as those here described; but within that period I did not drain in probably more than one per cent. of the operations. In one case of double ovarian abscess, in which the tumors were as large as the double fist, one of them being impacted and adherent deep in the pelvis, and each containing a pint of the most fetid pus, I placed a drainage tube; but as nothing drained, except a little sweet serum, I removed the tube a few hours afterwards. The patient had been septic for months, and had a temperature of 102° before the operation. She went home four weeks afterward, and remains well. Irrigation was kept up during the operation, and it rendered drainage unnecessary.

I cannot agree that it would be wise to increase the length of the incision, merely to render the irrigation more thorough. I think it might increase the danger of sepsis rather than diminish it. I believe in drainage where it is necessary, but I find it less and less necessary as my experience increases and my technique improves. I may drain in the case that I shall operate on to-morrow, but if I do, it will prove to be a case of very peculiar character. I do not regard anything as septic that is clean, and if the pelvic and abdominal cavities are clean before the incision is closed, there will be far less danger of septic infection than if a drainage tube is used. Decomposed pus is septic, healthy pus is not. A little blood, so slight in amount that the sponge is scarcely stained, will not cause sepsis. If the tumor, ovarian or tubal, containing fetid pus is removed and the pelvic cavity left clean, drainage is unnecessary.

Because I believe in scrupulous cleanliness I do not use a nail-brush. I am afraid of it. If I could have a new one for each operation, and my assistants and nurses could each have the same, I might go back to the use of it, but this is impracticable. For a long time I have used simply a file to keep my

nails in perfect condition. They are short and clean when I leave my office. Thorough washing with soap and water is sufficient to keep the hands in proper condition. The doctor stated that he sterilized everything except the sponges. I think the sponges would require sterilizing if anything did.

Reference was made to puncturing the uterus with the curette. I do not understand how the uterus could be perforated by the curette unless unwarrantable force were used, or unless the organ were very soft, in which case the curette should not be used.

DR. GEO. BOYD :

In regard to the use of the drainage tube, it appears to me that the frequency will depend partly upon the fact of whether the operator is doing his work in a hospital, and has the advantage of careful watching of the tube, or whether he has been working in private. It seems to me that in hospitals the drainage tube is used more frequently, and I think that with the skilled nursing and the better care at the hospital it might be used more freely than at the patient's home. Surely there is an advantage in the use of the drainage tube. If there should be hæmor-

rhage, as occasionally occurs, there would be a visible appearance of it. If we close all our cases we have only the pulse as an indication of hæmorrhage. That is one of the advantages in using the tube, and it is a strong claim for its use if it can be kept carefully clean. Where the operation is done at the patient's home it may be better to close the abdomen and run the risk of hæmorrhage and the necessity of reopening the case subsequently if hæmorrhage or other complications occur.

DR. JOSEPH HOFFMAN :

It appears to me that the discussions here are valuable, and the papers are valuable, so far as they teach or suggest something that has not been so far suggested, or that is an improvement in our work. When we hear an operator advocating this or that procedure, and give reasons for it, and another gets up and contradicts him, but gives no reasons, I am inclined to think that it is time wasted. That, I hold, is the attitude of Dr. Baer's discussion. Dr. Baer practically negatives drainage entirely. There is no way of arriving at a decision in what cases drainage is advantageous and in what disadvantageous. If we take up

some of the bugbears to which drainage is said to give rise, such as sepsis, peritonitis, general or local, hernia and fistula, and look at it from the standpoint of those who thoroughly believe in drainage, we find that in their eyes there is scarcely any danger of producing such calamities. It is easy to understand how, if a man does not believe in drainage, he may readily attribute everything to the drainage tube. The calamity that arises he traces to its use. Hernia comes where there has been no drainage, fistula also occurs where drainage has not been employed. It is not fair to attribute those accidents to the drainage tube. If one operator drains in 92 per cent. of his cases and another drains in 8 per cent., there is simply a difference in the horizon of these two men. They do not see things alike. The question is, which is correct, which has the best results on his side? I hold that it is the man who gives reasons for the faith that is in him. He is the man we should logically follow. The contradictor is not always the proper one to follow.

Take the question of the position of the patient. Dr. Baer does not believe in the position on the back, but still he does not give us

his reasons. If we take the experience of nine out of ten operators we shall find that it is only in the first twenty-four hours that the patient complains, and after that time he can not get her in any other position than on the back. She is not comfortable anywhere else. I operated on a lady a week ago to-morrow. She has not been off her back, and is only comfortable when on her back. There is reason for the patient's preferring a position upon her back. Take a case where both broad ligaments have been tied and place the patient upon her side. There will be a strain upon one ligament. If the patient is kept upon her back the tension will be equal. The position on the back is also a safeguard against hæmorrhage. In regard to this matter of putting two or three loops on the broad ligament, I do not think it is necessary. Neither is it necessary to leave a piece of the ovary in order to get a good pedicle. This is shown by cases where the inflammation has extended up in the uterus, and where you must cut into the cornu of the uterus. In such cases there is no use for more than a single ligature, and you can go that close in every case. It has seemed to me that in these cases the patients have less discomfort

than when the ligature is further from the uterus.

In regard to hand-disinfection, I myself cannot see why, if water that is boiled at a temperature of 212° F. is sterilized, we should put our instruments into a German oven and heat them up to a temperature of 300 or 400. There is no sense in that. Another thing. Take any suppurative process. Take, for instance, appendicitis in which we remove the appendix and where there has been a suppurating mass in the pelvis. We do not flush that pelvis out with bi-chloride or other chemical solutions, but we put in a drainage tube, and we expect that if no unlooked-for complications occur the patient will get well. Yet if it is not necessary to chemicalize our apparatus in order to get rid of fœtid material, why is it necessary to do so with our fingers? This is proved by the statistics of Tait and other operators who do not use chemicals. It is proved by the experience of those who used chemicals formerly and do not use them now, and whose results are as good as they were before.

What are we to think about flushing the abdomen? Dr. Noble thinks that it sometimes increases shock. I can only see one way in

which it might increase shock, and that is by having the water either too hot or too cold. Extremes are to be avoided. I have so often seen the beneficial effects of flushing, so far as the elimination of shock is concerned, that I do not believe that it will cause shock if correctly employed. I admit that there is apparently some danger of washing septic substances throughout the abdomen, but I think that this does not often obtain. I have never lost a case by sepsis that I have flushed and drained, but I have lost one case which I should not have lost if I had drained.

Another point, in regard to the presence of pus. The doctor has referred to the leaky and clammy skin as an indication of pus. In two cases in which there was presence of pus there was no leaky skin. One case I opened too late. There was a septic source which was not suspected. The other cases recovered. In neither was leaky skin present. It is not wise to put this or that symptom down as always present.

In regard to the relative use of the tube, I do not think that it should be kept out of private cases and used only in hospitals. We should do this work where we can use the resources best calculated for the best interest

of the patient. If it is needed in private practice it should be employed.

DR. WILLIAM EISTERLY ASHTON :

I cannot agree in regard to keeping patients on their back after section. They suffer greatly in this position, and I am always glad to get them out of it. I make it a rule after the first twenty-four hours to move the patient on one side or the other, supporting her by a pillow. Cases get along better under this method. This is natural. If we were to put a well person upon her back for a long time, suffering would result from the cramped position. A ligature applied to the broad ligaments is not a contra-indication to changing the position of the patient, as the amount of tension upon them would be practically nothing.

Dr. Hoffman is opposed to antiseptics in abdominal surgery. So am I. I do not believe that they are necessary, either for the preparation of the hands or for the preparation of the patient. If we could clean the abdominal cavity as well as we could our hands, we should have no deaths from sepsis. We cannot absolutely clean the abdominal cavity, although we do the best we can. We can

practically clean our hands. It is true that there are colonies of bacteria below the surface of the skin which we cannot reach, but they do but little harm. I do not agree with Dr. Baer in his objections to the use of the nail-brush. The nail-brush, as found in most hospitals or in the satchels of surgeons, will generally be found to swarm with bacteria. We should be as careful in the preparation of the nail-brush as in the preparation of our instruments. If we clean our nail-brushes thoroughly and submit them to steam or dry heat, they are safe.

In reference to curetting of the uterus being followed by puncture, it may be interesting to note that when I was connected with the Jefferson College Hospital, a case was brought to the clinic which had been punctured with a curette. No harm, however, came from this accident.

DR. JOSEPH PRICE :

I cannot permit the important subject of drainage to pass without saying something about it. I have many times been rather amused at the remarks of gentlemen criticising my views on drainage. A gentleman in Richmond, who has had thirty-two sections, with four deaths, remarked recently that Dr.

Price, five years from now, would have abandoned drainage. Five years ago, perhaps, some one said the same thing. Still my faith, as strengthened by increased experience, is as strong as before. As I have said on other occasions, if you were to take drainage from me I should give up abdominal and pelvic surgery. I am simply proud of my use of the drainage tube, my faith in it, and my knowledge of the subject. I use it about daily. I have used it for years about daily, and I can make almost any demonstration you desire of what it will do and how to do it. Last Sunday, in one case, I removed a small adherent ovarian cyst and finished the operation without drainage. In the second case I removed large pus tubes and ovarian abscesses with universal adhesions. In the cyst case I used no tube, while in the pus case I used a drainage tube. The pus case has given no uneasiness. Clean tongue, slow pulse and a cool skin. The cyst case has a coated tongue, and is rather restless. I have repeatedly demonstrated the value of drainage by placing these cases, the drainage and non-drainage, side by side. You can pick out the drainage and the non-drainage cases by simply looking at their tongues. If you

give the subject of drainage that refinement of study and care its merit demands, you can make all these demonstrations satisfactory.

In regard to the value and importance of irrigation. This is not so easy to do thoroughly and carefully as many operators imagine. It is not necessary to open the abdomen and go in with a milking-stool and sit down to do it thoroughly. For a moment before irrigating, crowd the ether a little. See that the water is of a proper temperature and the patient is in a proper position for a free flush, and that your irrigator is a proper one, and that you know how to use it. I find it the exception that operators know how to irrigate properly. The irrigator and the two fingers should form a trivalve speculum. By properly using it you will wash away all debris and filth, and if drainage follows nearly all cases will get well.

Dr. Hoffman has covered the ground in regard to solutions. Cleanliness is hard to obtain. It is costly. We cannot change our outer clothing daily. We walk the streets and the dust from horses, manure and everything else covers us. We can bathe and change our under-clothing, we may remove everything but our pants and wear aprons,

but we are not always clean. Cleanliness is costly, and good abdominal surgery is more costly, and the man who does it in extravagance has the lowest mortality.

The man who buys a new brush every time and uses distilled water will do good work. I have known operators to take foul ligatures which have been wrapped in towels and throw them back into the bottle and use them again. These are the fistulæ men.

In regard to rest and quiet and the dorsal position, we come back to the old principle in surgery, that of rest, position and pressure. Those who have had a broken arm or leg know the importance of rest, position and pressure. I suffered three fractures of my right humerus some years ago, and I treat sections as that humerus was treated. If you remove the splint in twenty-four hours you cause pain, and if you change the position you also cause pain. The back position is the proper one. Greig Smith has spoiled the whole surgical world on that point. I am sorry that he gave his patients so much liberty. He was evidently dealing with simple cysts. If you simply shift the position of the patient a little, place a fresh cool draw-sheet, turn her pillows, assure her she

is doing well, you will give her a comfortable night's rest, but if you turn her on her side and change her position, she will become restless and anxious and hard to control. If you aim at comfort for the patient as well as for the nurse and yourself, you will keep the patient on her back at the most absolute rest. After the first thirty-six hours she will not ask to be turned, and you will have no trouble. You can then make her strictly clean and comfortable and keep her so by placing her in a fresh bed daily.

Returning to drainage, but few of the tubes used or found in the shops are suitable. Most men use the old-fashioned clumsy tubes. Tubes and perforations are too large. A week ago, in a neighboring city, I said to a prominent operator, "Break that whole box of tubes and let me send you some fine ones." Many of the tubes used are dangerous and unsuitable.

In regard to ligatures, tubes and irrigators, everything used in abdominal or pelvic surgery should be perfection itself. I operated on a patient to-day for a huge ventral hernia which was operated on eleven months ago and reported as cured. It is interesting to present specimens and discuss the pathology and

clinical history shortly after operation, but it is a mistake to report cases as cured at that time. Two weeks ago a man presented specimens from two sections, and entered into the discussion in reference to the management of a certain class of cases. He flourished these two cases as a victory. Twenty-four hours later they were both dead. In regard to mortality, drainage, etc., Savage, Tait and Bantock have implicit confidence in drainage and the lowest mortality. Savage applies a drainage tube in about every case. Some good American operator recently visited him and asked why he drained such cases. He simply remarked that "they do better." Mr. Tait has not rejected drainage tubes in all cases. He does not use them so freely as years ago. Why? Simply because his preparation for the operation is the best, and second, that his operation is the best, that it is the shortest and simplest in every respect. He minimizes every danger. In his preparation for the operation he holds fast to his old superstition that the patient should be in bed for forty-eight hours before operation for preparation. He drains these patients before operation. He purges them and gives liquid nourishment. It is exceedingly difficult to distend a collapsed bowel. I have not had

distention in my private hospital in eleven months except in two cases which were operated on without any preparation. Three days ago I operated for extrauterine pregnancy. The woman came on the Blue Line in the patrol wagon, and was taken to my hospital at night, and I operated at 9 o'clock the following morning. In this case there was no time for preparation, and there was a little distention of the abdomen. Again, after section avoid all fluids in order that you may remove the drainage tubes early. In spite of your preparation, in spite of withholding food and fluids, and in spite of your care, you will find that a large quantity of fluid will flow through the drainage tube. The presence of the drainage tube does not prevent the peritoneal cavity from taking care of this fluid. Yet I recently did a section for universal healthy adhesion, and there was a great temptation to close the wound without drainage. There was a dense veil of adhesion over the tube and ovaries. It was difficult to find a point at which to begin. My better judgment, however, induced me to place a tube, and at intervals of half an hour the tube was cleaned and as much as one ounce of fluid removed each time, amounting to some six ounces in all.

DR. BAER :

Why does Mr. Tait not drain so much as formerly ?

DR. PRICE :

As I have stated, Mr. Tait keeps his patients in bed forty-eight hours before operation, he purges them freely, thus emptying the alimentary canal, and withholds fluid after the section, and purges early after operation, if necessary. He relies upon these more than upon the drainage, but he still drains when clearly indicated. Mr. Tait has attained the acme of perfection in abdominal and pelvic surgery—he minimizes every danger. The shortest anæsthesia, the shortest operation.

Passing to the results of the German operators, we find that Martin reports seventy-two pelvic operations, with twelve deaths. Martin does not drain. He did not drain from above in these seventy-two sections. I think that in a few cases he plunged a trocar into the vaginal wall and drained from below. He did five more sections and lost two, making fourteen deaths in seventy-seven cases. Such a mortality would simply stay our hands. It would stay the hands of all suc-

cessful abdominal and pelvic surgeons. I could not practice in this community with a mortality of fourteen in seventy-seven.

In regard to cleanliness. Early in my experience I used to pack everything in a bag which was kept clean inside and out. In the preparation of the patient I insist upon the greatest cleanliness of patient, nurse and environs. I hope some day to reduce nursing to the same system as the watch on a steamer, four hours on and six off. All my sections have two nurses for days or longer. I do not permit a nurse menstruating to take care of a drainage case. The chief nurse has a standing order to select two nurses not menstruating. I do not want a nurse to give personal attention to herself and attend to a drainage tube. One nurse looks after the patient and the other looks after the drainage tube and nothing else; she does not touch a cup or anything in the room, but keeps herself strictly clean for the care of the tube.

In suppurative forms of pelvic disease, by the careful use of irrigation and drainage, with skilful nursing, I keep my mortality at three per cent., refusing nothing. The same holds good in ectopic pregnancy, and vaginal and supravaginal hysterectomies. I

am satisfied that, after good surgery, irrigation and well-placed drainage give us the most perfect results.

DR. J. M. BALDY:

In regard to cleanliness, it is folly to say that the hands are septic because bacteriologists find a few germs. If a large number of operations can be carried through without infection, the hands are practically clean, and the germs found by the bacteriologists cannot amount to much and are not to be feared. If a man cannot keep a nail-brush as clean as his instruments or sponges he has no business to use a nail-brush. I find it impossible to keep the nails clean without a brush. If the nails have no septic matter under them, water and soap are sufficient, but if they contain septic material, one cannot get rid of it without the brush. It is the same with instruments.

It is possible that irrigation may convey septic matter into the abdominal cavity, but this risk is lessened if you know how to irrigate. I have had only one case in which I thought that sepsis was carried in this way. In this case there was a local abscess around the stump of the omentum, requiring a secondary operation. In the vast majority of

cases the water does not enter the abdominal cavity to any great extent. The intestines should be crowded back and held back with the fingers. Even if a small amount of pus is washed into the abdomen, it will do little harm, provided there is no raw surface. The peritonæum can take care of a considerable quantity of septic matter.

Twenty-four hours after operation patients do not complain so much of being left on their backs. They are better on their backs, and if you turn them, they complain of weight and pain in the incision. For the first twenty-four hours they do complain; but I think that they would be as uncomfortable on the side. It is more the tightness of the ligatures and the traumatism than the position. I have kept patients on their backs for a month, and there has been little complaint. After the first three or four days they complain very little.

If a man can operate and not occasionally leave a portion of the ovary in the stump, it is more than I can do. Where I have left it, I cannot conceive that I could have done anything else.

I do not believe that fistulæ occur where drainage has not been employed. Theoreti-

cally one might imagine that a fistula might occur where a drainage tube had not been employed; but if there is enough septic matter to reach the surface, the patient will die before it can do so, unless there has been drainage, and a weak track has been left for the pus to work up through.

Purging early after operation I find in my practice is a fallacy. I can not purge under two days. It is useless to give purgatives twelve to twenty-four hours after operation. As good results are obtained by waiting forty-eight hours as if we began six hours after operation. Although the calomel and salts be retained, the bowels are not moved.

Drainage. There is no question in regard to the value of drainage and of irrigation among those who know how to drain. I, however, do drain less than formerly. Where I have a clean fibroid uterus without adhesions to remove, I do not see any necessity for drainage. The same is true in uncomplicated ovarian cyst. If there is a particle of suspicious septic material about the case, I think it should be drained. You cannot pick out those cases where the pus is septic, and those where it is not. The results of non-drainage are shown on the temperature sheet,

and by watching the temperature sheet and tongue we can tell whether the case has been drained or not. I have watched the temperature charts of some of the gentlemen who do not drain, and they have sometimes elevations of temperature to as much as 102° . In similar cases where I have drained and no fluid has been left, there has been no elevation of temperature. In cases where the tube has been left out and two or three ounces of fluid have collected, there is good reason for this elevation of temperature, even though it be not septic. The peritonæum may take it up, but the patients do not do as well; they have fever, a bad tongue and are more restless.

I do not have as much faith as formerly in the drainage tube as an indication of hæmorrhage; I think that it will not always tell. During the summer I lost a case from hæmorrhage although I had a drainage tube *in situ*. In the first twenty-four hours the patient did not lose more than fifteen ounces of blood through the tube, but that did not indicate the total amount of blood lost. Of course it was very evident that she was bleeding all the time, but the quantity was so small that I was continually in hopes that it was merely free

oozing. I finally reopened and found three times as much blood in the abdominal cavity, and this in spite of the fact that the tube had been cleaned every twenty minutes. The patient died from the effects of the hæmorrhage.

In regard to Dr. Boyd's remark with reference to draining in public and private practice, if the case is septic and going to die, it will die in private practice as well as in a hospital. If it recovers in private practice without drainage, that will show that it was not septic. It is not a question whether the case occurs in private practice, or whether the tube can be properly cared for or not. The doctor could take care of it himself, if necessary, and see that it is well cared for. If there is any serious trouble, it is present when the operation is ended; there are few cases in which the trouble is the result of the after-treatment. In almost all my septic cases, I have always been able to put my finger on the cause, either in the operation or in the condition of the patient.

DR. B. F. BAER :

I should like to say another word. Dr. Hoffman wants reasons. I find, as I get

older, that the fewer reasons I give the less trouble I get into. The result is the reason for my faith. Truth is stronger than fiction, and it is simpler. I did not say that I compelled the patient to get on her side; I simply permit her to be turned if she desires. As a rule, if she prefers to remain on her back, I dermit her to do so; but as a rule, she does not prefer it. I have frequently seen patients who were tired and restless and sleepless in the dorsal position, become quiet and drop off to sleep when turned on the side. Another reason is that I believe intestinal peristalsis is encouraged by it, and I do not think that anyone will deny that peristalsis should be encouraged. Flatus will pass more easily if the patient is turned. The lateral is the natural position in sleep. It does not interfere with the healing of the incision, nor with the ligated broad ligaments; on the contrary, I believe it is an aid, because it relaxes the muscles in the abdominal wall and pelvis. Relaxation is rest, not rigidity. The patient is rendered more comfortable by a change of position. Then I have proved my position, for I have had 110 consecutive cases without a death from the operation, and they have been managed on this principle. I disagree

with the statement that the patient is more restless when turned on the side.

My reason for discontinuing drainage in most cases is a very simple one. My patients do better since I have not used drainage. That the temperature rises more constantly where the tube is not used, has not been my experience. I rarely see a temperature above 100° .

DR. CHARLES P. NOBLE :

So many points have been covered in the discussion that I shall confine my remarks to a few of them. In reference to the position on the back for patients after section, I must confess that my experience is not that of Dr. Baer. When I started my work it was with the idea that it was a good thing for the patient to move, but I found that they wanted to get on the back again, and so I and my nurses came to the conclusion that they were more comfortable on the back. I do not think that I have had a patient on her side in less than two weeks, for months, except it might be that they have had a good deal of flatus. I agree that if there is much distention the gas will pass better if they turn on the side. If there are stitches in the ab-

dominal wall, turning upon the side will pull upon the sutures and cause discomfort ; and there is certainly a tendency to pull apart the aponeuroses of the oblique and transverse muscles. If they are kept upon their back, it is reasonable to suppose that there will be a better line of union and less risk of subsequent hernia. I prefer them to have a bed-rest to turning off the back. I do not see any objection to the early use of the bed-rest.

With reference to drainage, I have always drained as I drained in this series, that is, in about ninety per cent. I confess that I intend to drain less. What made me drain so frequently was because I had two or three hæmorrhages, and two or three lives were saved by the tube. In one case, in double ovariectomy with a fleshy pedicle, there was severe hæmorrhage, which nearly cost the patient her life. The drainage tube told me, and I opened the abdomen and washed it out, and the patient recovered. There were other cases in which the blood came freely from the tube, and I felt that life had been saved by the tube. Having three such cases close together, it seemed to me that tying the ligature was not a fine art in my hands, and that it was better to drain. In the later cases there has been only one hæmorrhage, and I

feel that the hæmorrhage undoubtedly had much to do with one of the deaths. In any case, where there is the least suspicion in regard to the satisfactory character of the ligation, it would be better to drain. If there was much doubt I should change the ligature. In clean cases, however, where the tie is perfectly satisfactory, in the future, I shall not use drainage. I believe that the universal tendency is to not drain so freely in the simpler cases, and that the results are equally satisfactory. Dr. Mann, of Buffalo, had upwards of 100 cases, without losing any. This shows that drainage is not absolutely necessary. Other men have had similar experience, which encourages us, in cases where there are not many adhesions and where there is no septic material poured out, to gradually do away with drainage.

With reference to one of the deaths being caused by the drainage tube, as suggested by Dr. Baer, I am not inclined to agree with him. That patient undoubtedly died septic, but she had a hæmatosalpinx which was ruptured in the attempt to remove it, and, as we know, the fluid in these cases is often virulently septic. There was abundant reason for sepsis without the infection coming through the

tube. If she had not bled, the drainage tube and peritonæum would probably have taken care of the sepsis. I regret that in that case I did not reopen and wash out, for I believe that she would have then had a better chance. That case and one other were the only ones in my experience where I felt that any slip in the technique had anything to do with the patient's death.

In reference to infection through the tube causing fistula, etc., I do not think that it is frequently the cause of this if the tube is properly attended to. I should be entirely afraid to trust the drainage tube to the nurse. I should feel that I was not doing my duty. I would not think of allowing a nurse to take a syringe which might be septic and put it into the tube if the tube were in my own peritonæum. I admit that the results of the men who do this are as good as my own, but looking at it from the standpoint of bacteriology, which I consider good science, I do not feel that it would be justifiable for me to do it.

With reference to some of the causes of sepsis: After every operation the nail-brushes are cleaned. All brushes are boiled for an hour after the operation, and if the nail-brush should get into nasty material it is thrown

away. Dr. Baer could not understand why I did not cook the sponges. If you boil a sponge it spoils it. I believe that it is important to have sterilized sponges, and that is the reason I throw them away after they are used. The sponge, after being cleaned, can be soaked in a strong germicidal solution, and I feel that if it is well cleaned and soaked in a strong carbolic acid solution it is germ free, and then if the solution is washed out before the operation it is perfectly aseptic.

Dr. Hoffman seemed to think that I attributed the leaky skin to the presence of pus. He simply did not catch the force of the sentence in the paper. I said that it indicated the absorption of septic material. Whether that is ptomaines from pus or without pus or from any other septic material, I think it will cause a leaky skin. In this particular case there was no pus. In septic peritonitis with leaky skin the patient is usually dead before the pus forms. A leaky and clammy skin with rapid pulse is a sign of absorption of septic material.

To go back to drainage. There is one reason why those gynæcologists who are opposed to chemical solutions drain more, that is be-

cause they need to. They are not as aseptic as others. They put more infection into the abdominal cavity, and it is necessary that they should provide for the results of such infection. If they did not drain they would have serious results. This fact explains why their simple cases do worse without drainage than their bad cases with it.

One other matter with reference to drainage. We hear a great deal about the large quantity of fluid which comes out of the tube. In about one hundred cases where drainage tubes were used, I have seldom seen much fluid come out of the tube except in tubercular peritonitis. I believe that what comes out of the tube is clean water in nine out of ten cases. It is the fluid which has been used in irrigation and which has not been sponged away. In the majority of cases I have not taken more than one drachm out at a time. The reason of this is, I believe, because I sponge out the cavity dry.

In regard to the occurrences of sinuses where a drainage tube has not been used. I have seen one such case. This was a patient from whom I removed the tubes and ovaries on account of rudimentary development. Hysterorrhaphy had been done previously

with the hope that this would avoid the necessity for a more serious operation. There was no drainage, and she had a sinus. I saw another case in which sinus followed the same operation.

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